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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/502,451	11/30/2005	Johan Olof Anders Robertsson	WGEC/0035	3970
28116	7590	12/06/2007	EXAMINER	
WESTERNGECO L.L.C.			LE, TOAN M	
PO BOX 2469			ART UNIT	
HOUSTON, TX 77252-2469			PAPER NUMBER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

TH

Office Action Summary	Application No.		Applicant(s)	
	10/502,451		ROBERTSSON ET AL.	
	Examiner		Art Unit	
	Toan M. Le		2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-10,13,14,18 and 19 is/are rejected.
- 7) ☒ Claim(s) 3-5,11,12 and 15-17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 July 2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>7/23/04; 1/12/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claim 8 is objected to because of the following informalities:

Claim 8, line 3, "the respective receiver" should read -the respective receiver.-.

Claim 13 recites the limitation "wherein the method of seismic surveying" in line 2.

There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 6-10, 13-14, and 18-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Muyzert et al. (US Pub. No. 2005/0068850 A1).

Referring to claim 1, Muyzert et al. disclose a method of processing seismic data including corresponding first and second modes of seismic energy, the method comprising the steps of:

a) processing a trace indicative of a first parameter of the seismic data acquired at a first receiver including at least events corresponding to the first mode with a trace indicative of a

second parameter of the seismic data acquired at the first receiver including at least events corresponding to the second mode ([0007], [0008], [0009], [0011]; Figure 1);

b) identifying an event in the processed data corresponding to partial mode conversion ([0008], [0040] to [0046]); and

c) obtaining information from the amplitude and/or the waveform of the event in the processed data corresponding to partial mode conversion ([0040] to [0046]).

As to claim 2, Muyzert et al. disclose a method of processing seismic data including corresponding first and second modes of seismic energy, wherein the second mode has been generated by partial mode conversion of the first mode at a boundary face of a layer of the earth ([0003], [0004], [0043] to [0046]).

Referring to claim 6, Muyzert et al. disclose a method of processing seismic data including corresponding first and second modes of seismic energy, comprising the further step of repeating steps (a), (b) and (c) for seismic data acquired at a second receiver, the second receiver not being co-located with the first receiver ([0037], [0038]; Figure 1).

As to claim 7, Muyzert et al. disclose a method of processing seismic data including corresponding first and second modes of seismic energy, wherein the first parameter of the seismic data is a vertical component of particle motion acquired at the respective receiver ([0048]).

Referring to claim 8, Muyzert et al. disclose a method of processing seismic data including corresponding first and second modes of seismic energy, wherein the second parameter of the seismic data is a horizontal component of particle motion acquired at the respective receiver ([0048], [0049]).

As to claim 9, Muyzert et al. disclose a method of processing seismic data including corresponding first and second modes of seismic energy, wherein the second parameter of the seismic data is the component of particle motion acquired at the respective receiver in the direction between a source of seismic energy and the respective receiver ([0048], [0049], [0055]; Figures 2-5).

Referring to claim 10, Muyzert et al. disclose a method of processing seismic data including corresponding first and second modes of seismic energy, wherein at least one of the first and second parameters of the seismic data is obtained by decomposing the seismic data acquired at the respective receiver ([0049], [0050]).

As to claim 13, Muyzert et al. disclose a method of processing seismic data including corresponding first and second modes of seismic energy, wherein the method of seismic surveying comprises the steps of:

a) directing seismic energy propagating in a first mode towards a boundary face of a layer of the seabed such that partial mode conversion of the seismic energy into a second mode occurs at the boundary face;

b) acquiring seismic data including the first and second modes of seismic energy at one or more receivers ([0040] to [0046]; Figure 1).

Referring to claim 14, Muyzert et al. disclose an apparatus for processing seismic data including corresponding first and second modes of seismic energy, the apparatus comprising:

a) means for processing a trace indicative of a first parameter of the seismic data acquired at a first receiver including at least events corresponding to the first mode with a trace indicative

of a second parameter of the seismic data acquired at the first receiver including at least events corresponding to the second mode ([0007], [0008], [0009], [0011], [0017] to [0019]; Figure 1);

b) means for identifying an event in the processed data corresponding to partial mode conversion ([0008], [0040] to [0046]); and

c) means for obtaining information from the amplitude and/or the waveform of the event in the processed data corresponding to partial mode conversion ([0040] to [0046]).

As to claim 18, Muyzert et al. disclose an apparatus for processing seismic data including corresponding first and second modes of seismic energy, comprising a programmable data processor ([0020]).

Referring to claim 19, Muyzert et al. disclose an apparatus for processing seismic data including corresponding first and second modes of seismic energy, comprising a storage medium containing a program for the data processor ([0021]).

Allowable Subject Matter

Claims 3-5, 11-12, and 15-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The reason for allowance of claims 3 and 15 is the inclusion of normalizing the amplitude in the processed data of the event corresponding to partial mode conversion.

The reason for allowance of claim 4 is the inclusion of normalizing the amplitude in the processed data of the event corresponding to partial mode conversion relative to the amplitude of the processed data at zero time delay.

The reason for allowance of claims 5 and 17 is the inclusion of normalizing the trace indicative of the second parameter relative to the normalized amplitude of the of the event corresponding to partial mode conversion.

The reason for allowance of claim 11 is the inclusion of cross-correlating the trace indicative of the first parameter of the seismic data acquired at the first receiver with the trace indicative of the second parameter of the seismic data acquired at the first receiver.

The reason for allowance of claim 12 is the inclusion of deconvolving the trace indicative of the first parameter of the seismic data acquired at the first receiver from the trace indicative of the second parameter of the seismic data acquired at the first receiver.

The reason for allowance of claim 16 is the inclusion of normalize the amplitude in the cross-correlated data of the event corresponding to partial mode conversion relative to the amplitude of the cross-correlated data at zero time delay.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan M. Le whose telephone number is (571) 272-2276. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

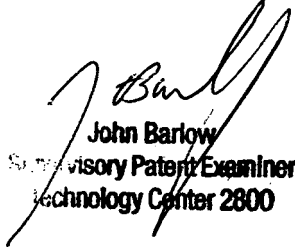
Application/Control Number:
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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Toan Le

December 3, 2007



John Barlow
Supervisory Patent Examiner
Technology Center 2800